MEETING ON "MATHEMATICS IN A SOCIAL CONTEXT" AT REGENSBURG 2-3 JULY 1976

By Vittorio De Vecchi, University of Toronto

A meeting on the theme "Mathematics in a Social Context" took place on the 2 and 3 July 1976 in Regensburg (DBR) under the joint sponsorship of the Fritz Thyssen Stiftung, the History of Science Department of the University of Regensburg, and PAREX (the European programme of cooperative research in the social studies of science).

The seminar, organized by Vittorio De Vecchi (Sussex/Köln/Toronto) and Thaddeus Trenn (Regensburg), was convened in order to discuss whether a discipline widely held to be pure, and therefore non culture bound, could be amenable to the type of analysis performed on other sciences by students of the sociology of knowledge

The papers presented can be classified into three broad categories.

Two presentations dealt with the broad socio-cultural matrix of mathematics. In their essay on "The Cambridge-London Axis, 1854-88", W. H. Brock (Leicester) and R. M. MacLeod (Sussex), considering the English reaction to the new Continental analysis and geometry of the second half of the 19th century, focussed on the role played by the London Mathematical Society and the Association for the Improvement of Geometrical Teaching, and their relations with some of the main English centres of higher education. S. Regoczei (Toronto), on the other hand, in "Social Roots of the Ideology of Pure Mathematics" argued that, seen against the broad historical development of modern mathematics, the birth of Weierstrassian 'pure' analysis appears as a historical accident, closely related to a particular country and cultural temper. In addition, J. G. O'Hara (UMIST, Manchester) contributed a footnote to this general set of issues briefly sketching the characteristics of the Irish School.

A second group of three papers proposed, in connection with a few specific examples, some 'mechanisms' that would account for the effect of external factors upon intellectual production, thus implicitly pointing at alternative ways of reading the historical record. D. MacKenzie (Edinburgh) outlined in "Statistical Controversy and Sociological Explanation: Pearson and Yule on the Measurement of Association" the biographical and political grounds of the two mathematicians' disagreement on both statistics and heredity, suggesting that the incommensurability (Kuhn) of their positions is the consequence, rather than the origin, of different interests and purposes. V. De Vecchi (Sussex/Köln/Toronto) gave an example of the application of the notion of 'norm' or 'rule', as recently developed by Bloor and Tranöy, in "An Interpretation of the North-Italian School of Mathematics", tracing the formation of a common ethos to the Italian educational politics of the late 19th century, and proposing ways in which it affected the

type of mathematics produced. Thirdly, in his study on "The Concept of Rigour and External Factors in the History of Mathematics", K. Manning (MIT) argued that, despite the variable meaning of the word 'rigour' in history, questions of rigour constantly arise in the formulation of definitions, and not so much in demonstrations as some mathematicians and philosophers have maintained; a number of historical examples illustrated the contention that external factors can affect the intellectual content of mathematics particularly at the stage of definition.

Finally, two papers by I. Tőth (Regensburg) and J. Dauben (City University of New York) examined the cultural premises of two major mathematical revolutions. The first, discussing "The Role of External Factors in the Establishment of non-Euclidean Geometry", distinguished between anti-Euclidean (Lambert, Saccheri, Taurinus, etc.) and non-Euclidean (Gauss, Bolyai, Lobachevskii) geometries, and contended that the acceptance of the plurality of geometrical worlds, implicit in the latter and justified by the belief in the creative powers of man, was possible in the early 19th century because of the widespread spontaneistic cultural trends. The second, in a more biographical vein, presented the result of his analysis of Georg Cantor's diary and correspondence which shows how the evangelical upbringing and the philosophical and mystical preoccupations of the founder of trans-finite number theory determined his career and some aspects of his theory.

In an appendix to the meeting, M. Mahoney (Princeton) delivered a progress report on his present and planned research on the social and political context of the first years of the Académie des Sciences.

During the two days of the meeting, and in the ample time for discussion at the participants' disposal, there emerged the desire to pursue in greater depth some of the issues raised. It was felt that the positive results of the Regensburg colloquium showed that there is scope for the intellectual venture of placing the history of mathematics within the purview of social history. The proceedings were recorded on tape.

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The program in the "First Circular and Preliminary Registration Card" lists 11 sections, including I. Science and Technology in Antiquity, II. Science and Technology from Antiquity to 1600, III. Mathematics and Mechanics since 1600, X. Science and Society since 1600, and XI. Problems of Philosophy, Methodology and Historiography. No mention is made of any observance of the Gauss bicentennial, but plans are afoot to include one. Colleagues interested in attending should write immediately to Dr. Eric G. Forbes, Royal Society of Edinburgh, 22 George St., Edinburgh EH2 2PQ, Scotland.